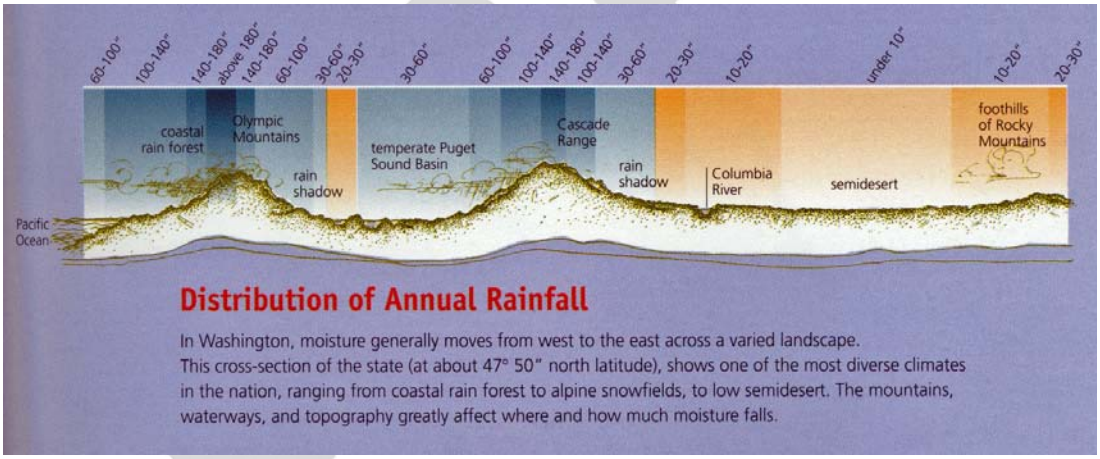
V. State Overview

A. Physiography and Climate

Although Washington is the smallest of the western states (less than half the size of Montana), it is geographically and ecologically diverse. Three natural features—the Cascade Range, Puget Sound and the Columbia River—determine and define the climate, economy, physiography and biodiversity of Washington.

The Cascade Mountains, which extend from the Columbia River north to the Canadian border, divide the state into wetter west and drier east regions. The western slopes of the Cascades drain to Puget Sound and the Pacific Ocean and eastern slopes drain primarily to the Columbia River. The Columbia River flows into Washington from Canada and courses 745 miles to the Pacific Ocean.

Washington's climate is heavily influenced by prevailing westerly winds, which travel up to 4,000 miles across the Pacific Ocean before reaching land. These moisture-laden winds are warmed by ocean currents; as they reach the coast, the air rises and cools, dropping heavy precipitation on the Cascades, the Olympic Mountains, and other coastal ranges. Annual rainfall on the western slopes of the Olympics exceeds 200 inches—the highest in the United States outside Alaska. The Cascades also intercept Pacific Ocean storms and experience both heavy rain and snowfall in winter.



Distribution of Annual Rainfall

In Washington, moisture generally moves from west to the east across a varied landscape. This cross-section of the state (at about 47° 50" north latitude), shows one of the most diverse climates in the nation, ranging from coastal rain forest to alpine snowfields, to low semidesert. The mountains, waterways, and topography greatly affect where and how much moisture falls.

The Cascade and Olympic mountain ranges work together to create rain shadow effects in both the Puget Sound basin and in the Columbia Plateau by shielding them from the heaviest rains. Rainfall in the Puget Sound ranges from 17 to 50 inches annually, depending on the shielding effect of the Olympics. The rain shadow effect of the Cascades extends hundreds of miles east to the Columbia Plateau, where the rainfall rarely exceeds 14 inches and shrub-steppe desert, native grasslands and dry ponderosa pine forests predominate.

B. Land Ownership and Human Population

Washington ranks 16th among all 50 states in population and is second only to California in both population size and population density in the West. The state's population increased from 4.1 million in 1980 to 5.8 million in 2000, and is projected to grow by another 2 million by 2020. Population density in 1990 was estimated at about 87 people per square mile, compared to 196 people per square mile in California and 42 people per square mile in Oregon.

Most (65%) of the state's population and rapid population growth is centered in the Puget Sound region, from Bellingham to Olympia, although rapid growth is also taking place in other metropolitan areas, especially Vancouver, Spokane, Yakima, Wenatchee, and the Tri-Cities (Richland, Pasco and Kennewick). According to the 2000 census, Clark County (Vancouver), across the Columbia River from Portland, Oregon, was the fastest-growing area of the state. Thurston County, where Washington's capitol city of Olympia is located, is expected to exceed all other counties in population growth in the next decade.

About 40% of Washington's land base (17,697,000 acres) is in public ownership, including military bases, the Hanford nuclear reservation, and state and federal parks, forests and wildlife refuges. This total does not include tribal lands, which account for another six percent. About 30% of the state's marine tidelands and 75% of freshwater shorelands are also owned by the State of Washington, the remainder having been sold into private ownership after statehood in 1889.

Although Washington's percentage of public land is lower than other western states such as Nevada (84%) and Oregon (54%), much of the state's public land and protected wildlife habitat is located in high-elevation forests and managed as National Forests, National Parks, or State Trust Lands. The largest public land manager in the state is the USDA Forest Service, followed by the Washington Department of Natural Resources.

Lower-elevation public lands (including wetlands, riparian corridors, prairies, shrub-steppe grasslands and forests below 3,000 feet) make up significantly less than half of the state's public land and habitat base. Table 1 shows the acreage of state, tribal and federal lands in Washington. The map on page ** also depicts public and private land ownership.

Table 1. *Public land ownership in Washington.*

OWNERSHIP	ACRES
Federal	12,766,860
State	3,597,527
Tribal	3,091,998
City	156,047
County	79,496

Much of the private land in Washington outside metropolitan areas is in timber or agricultural production. Forests cover 40% of the state's total land area, and private corporate timberlands account for about one quarter of that, more than 4 million acres. Agriculture accounts for another 15.3 million acres, about one-third of the state, with half of that in crop production and the rest in range, pasture and other agricultural uses.

C. Washington's Biodiversity

Washington is one of the most biologically diverse states in the United States. This diversity is due to a number of natural factors such as the state's varied topography, its exposure to Pacific Ocean currents and weather patterns, and its location on the migratory path of many wildlife species including birds, California gray whales and all seven species of Pacific salmon. Geographic diversity includes seacoast, shrub-steppe desert, native prairies, mountain ranges and the huge inland estuary known as Puget Sound. In fact, Washington contains most of the major ecosystem types found in the western United States, including two that are found nowhere else in the world—the channeled scablands of eastern Washington and the Olympic rainforest.

Biodiversity is often defined or characterized by species richness—the number of plants and animals that spend all or part of their lifecycle in a particular area. Washington is permanent or temporary home to thousands of plant and animal species, including 140 mammals, 470 freshwater and saltwater fish species and 341 species of birds that either breed here or stop here on their annual migrations. Washington also hosts 150 other vertebrate species, 3,100 vascular plant species, and more than 20,000 classified invertebrates. Approximately 2,000 of the invertebrate species are butterflies and moths. Most of the animal species fall within the legal definition of "wildlife" and are under the purview of WDFW. Responsibility for the conservation of native plants, including those designated as priority species, rests with the Natural Heritage Program of the Washington Department of Natural Resources.

Biodiversity is not a constant, even in a naturally evolving environment. Changes are accelerated by rapid human population growth and increased economic activity, and Washington's biodiversity is impacted every day by human disturbance to natural ecosystems. Much of the state is forested, but only a small part of that (10%) has been left unharvested. Estuarine (coastal) wetlands are extremely productive biologically, yet more than 90 percent of these wetlands in the greater Puget Sound area have been lost since the turn of the century. As Washington continues to grow and develop, fish and wildlife habitat is being altered and sometimes lost, resulting in a net loss of biodiversity. To be effective in stemming the loss of biodiversity, WDFW and its conservation partners must pool their limited resources and have a reliable method for identifying and prioritizing the most important places in Washington for biodiversity conservation. The ecoregional assessments described below are one effective method for addressing biodiversity conservation.

D. Washington's Ecoregions

Ecoregions are defined through broad ecological patterns in the landscape. Each ecoregion exhibits a distinctive composition and distribution of plant communities and associated wildlife, which has encouraged WDFW and its conservation partners to conduct biological assessments and conservation planning at the ecoregional scale.

The ecoregional boundaries used in this conservation strategy document are derived from boundaries developed by the U.S. Environmental Protection Agency in 2000, and were used by the Washington Department of Natural Resources in their Washington Natural Heritage Plan (http://www.dnr.wa.gov/nhp/refdesk/plan/index.html) adopted in 2003. These boundaries are also used by The Nature Conservancy and its partners for developing ecoregional assessments and plans across North America. There are 63 ecoregions delineated in North America, and nine of these occur within Washington.

To guide biodiversity conservation and inform land use planning across the state, WFW, the Washington Department of Natural Resources and The Nature Conservancy have

formed a partnership to do an ecoregional assessment (EA) for each of Washington's nine ecoregions shown in the map below. These nine EAs attempt to identify and prioritize the most important places for the conservation of all biodiversity in an ecoregion. The relative importance of places is based on such factors as species rarity, species richness, species representation, site suitability and overall efficiency. They do not replace individual species recovery or management plans, or any other species-based or habitat-based planning, but are designed to ensure that the highest priority biodiversity sites are identified and protected first.

The main products of these assessments will be **conservation priority maps** that depict the relative conservation value of places across each ecoregion. These maps and the data used to create them can guide cost-efficient conservation efforts on both public and private land. The primary uses of these maps are: 1) prioritizing potential land acquisitions and conservation easements; 2) rating grant proposals for habitat protection or restoration; and 3) informing local planners for the purposes of county comprehensive plans and other local planning projects. The EAs will not be completed for Washington until 2006. A brochure describing the relationship between the CWCS, the EAs and other current planning and assessment programs is included as an appendix.

Chapter VI of this conservation strategy is an overview of each ecoregion in Washington and a discussion of regional conservation problems and priorities for WDFW and its conservation partners. The resulting narrative summarizes nine ecoregional conservation strategies, with regional species and habitat priorities and recommended conservation actions. When the EAs are completed in 2006, conservation priority maps will be added to each of the nine ecoregional chapters of the CWCS to illustrate the relative biodiversity within each ecoregion.

(Sample conservation priority maps for two ecoregions will appear here in the final version of the CWCS.)

E. Species Distribution, Status and WDFW Management Priorities

Washington is home to a wide array of vertebrate and invertebrate wildlife species. The distribution and richness of these species is largely a function of the habitat available to them, both within Washington and, in the case of migratory species, outside the state. As Washington's habitat base has changed over the last hundred years, so has the distribution and status of the state's wildlife. Wild runs of Pacific salmon have diminished in both numbers and diversity with the construction of dams, water development projects and land use changes. Species such as the greater sage-grouse that are dependent on native shrub-steppe habitat have declined in numbers and distribution as shrub and grassland habitat has been converted to farms, orchards and other economic uses. On the other hand, water development in the Columbia Basin has created new areas of wetland habitat for migrating and wintering waterfowl, and the clearing of forests for agriculture in northeast Washington has facilitated the expansion of white-tailed deer into many areas where they did not occur prior to statehood. The 651 terrestrial vertebrate species cited in *Wildlife-Habitat Relationships in Oregon* (Johnson and O'Neil, 2001) *and Washington* might be more or fewer in number in 2005. Their abundance and distribution is almost certain to have changed over time with changes in the habitat base.

The Washington Department of Fish and Wildlife (and its pre-merger parent agencies of Game and Fisheries) has always classified fish and wildlife species for purposes of management and harvest regulation. Historically, the management emphasis was almost exclusively on commercially harvested species (salmon, shellfish and other food fish) and game species. This began to change in 1972 when Game and Fisheries developed and funded a state Nongame Program to identify and conserve species not identified as game or commercial species. In 1980 Game and Fisheries began to develop a state list of Threatened and Endangered Species, which has since been expanded to include proactive categories of Candidate and Monitor species.

In 1989 an official statewide list of Priority Habitats and Species (PHS) was created, which has been used to provide important fish, wildlife and habitat information to local governments, state and federal agencies, private landowners and consultants, and tribal biologists for land use planning and wildlife conservation purposes. PHS is currently the agency's primary means of transferring fish and wildlife information from fish and wildlife resource experts to those who protect and manage habitat on both public and private land.

In 2001, WDFW was a major funding partner and participant in the production and publication of *Wildlife-Habitat Relationships in Oregon and Washington*. The document is an important bi-state, public-private effort that combines a number of state-level species lists into one Northwest regional list, with consistent scientific and common names and occurrence information. It includes a list of 753 terrestrial vertebrate species for Oregon and Washington in the following five occurrence categories: Occurs, Accidental, Non-native, Reintroduced, and Extirpated. Of these 753 species, 651 were determined to occur in Washington; the rest occur only in Oregon.

In 2004, WDFW began preparation of the Comprehensive Wildlife Conservation Strategy (CWCS) with the development of a statewide **Species of Greatest Conservation Need (SGCN)** list. Construction of this list began by ranking a source list of almost 700 species derived from previously evaluated lists, including the PHS list, and ended with an initial statewide SGCN list of approximately 200 species. The

full list of 660 species, including the SGCN, is shown in an appendix. A separate appendix lists the anadromous salmonid fish included on the full SGCN list; the salmonids were ranked by Genetically Distinct Unit (GDU) rather than by species.

On both matrices, the Species of Greatest Conservation Need are those listed above the heavy blue line; in the non-salmonid matrix, the blue line is on page 6.

Many of the species on this SGCN list ranked high because of biological concerns such as threat and vulnerability; some were targeted for the list because it was determined tat their recovery or conservation efforts were not adequately funded; others were included because their lifecycles and habitat relationships are not well understood and need more research, surveys and/or management dollars directed to them. Only native animal species were considered in developing this list, although no major groups of wildlife (taxa) were excluded from consideration. Game and commercially harvested specie were included if they met other ranking criteria such as inclusion on WDFW's PHS list or the list of Global or State ranked species of concern developed by the Washington Natural Heritage Program. Guidelines for the Natural Heritage Program rankings can be accessed at http://www.natureserve.org/explorer/aboutd.htm.

An ecoregional subset of SGCN and Associated Priority Habitats is also provided within each of the ecoregional chapters.

The process and criteria for developing the SGCN list and Associated Habitats is provided in Volume Two: Approach and Methods. The species list, as well as other elements of the CWCS, will be reviewed every two years as part of WDFW's biennial budget cycle.

Other managed species: In addition to adopting strategies to manage species on the statewide SGCN list, WDFW will continue to conserve and manage other fish and wildlife species and associated habitats for recreational use and/or commercial harvest. The term "other managed species" includes game species not on the SGCN list, including non-natives such as ring-necked pheasant, chukar partridge and largemouth bass, as well as commercially harvested marine fish, anadromous fish and shellfish. Many conservation actions undertaken for SGCN, especially actions that protect or restore habitat, will also benefit many game species and commercially harvested species.

In 2003 WDFW published the *2003-2009 Game Management Plan*, which articulates management and research objectives, priorities and policies for all terrestrial game species managed by WDFW. Similar plans for sportfish, commercial fish and shellfish have also been adopted by WDFW. A more complete list of WDFW management plans will be included as an appendix in the final CWCS.

F. CWCS Habitats of Conservation Concern

The statewide Habitats of Conservation Concern list was determined using two sources, the official Priority Habitats and Species (PHS) http://wdfw.wa.gov/hab/phshabs.htm list of 19 basic habitats maintained WDFW since 1989, and the various priority habitats associated with identified SGCN for each ecoregion, as discussed in Chapter VI. For purposes of consistency, we have used the definitions for the basic habitats defined in *Wildlife-Habitat Relationships in Oregon and Washington (*WHROW*)*. These habitats are listed below and fully described in an appendix to the CWCS.

The process that David Johnson and Tom O'Neil developed for defining these habitats in WHROW started with the definition of 287 plant alliances across the landscape of

Washington and Oregon. Then, through a process of grouping and crosswalking (coordinating) these plant alliances, they were eventually able to isolate and describe 32 basic wildlife habitats—terrestrial, aquatic and marine—29 of which occur in Washington (see below) and two of which occur only in Oregon. WHROW also documented the degree of association of these 32 wildlife habitat types with all 753 identified wildlife species.

By associating the SGCN list with the 29 basic habitat types found in Washington, and by further coordinating this list with the official PHS habitat list described above, it was determined that the following 19 habitats, broken into Priority One and Priority Two categories, are the highest priorities for current statewide conservation action in Washington.

WHROW HABITATS IN THE STATE OF WASHINGTON
Listed by Priority

Priority 1

Bays and Estuaries
Eastside (Interior) Grasslands
Shrub-steppe
Eastside (Interior) Riparian-Wetlands
Herbaceous Wetlands
Marine Nearshore
Ponderosa Pine Forest and Woodlands (includes Eastside Oak Woodlands)
Westside Grasslands
Westside Lowland Conifer-Hardwood (Mature) Forest
Westside Riparian-Wetlands

Priority 2

Coastal Dunes and Beaches
Coastal Headlands and Islets
Eastside (Interior) Mixed Conifer Forest
Inland Marine Deeper Water (Puget Sound)
Montane Coniferous Wetlands
Montane Mixed Conifer Forest
Subalpine Parkland
Westside Grasslands
Westside Oak and Dry Douglas-fir Forest and Woodlands

Other

Agriculture, Pasture and Mixed Environs
Alpine Grassland and Shrublands
Desert Playa and Salt Scrub Shrublands
Dwarf Shrub-steppe
Eastside (Interior) Canyon Shrublands
Lodgepole Pine Forest and Woodlands

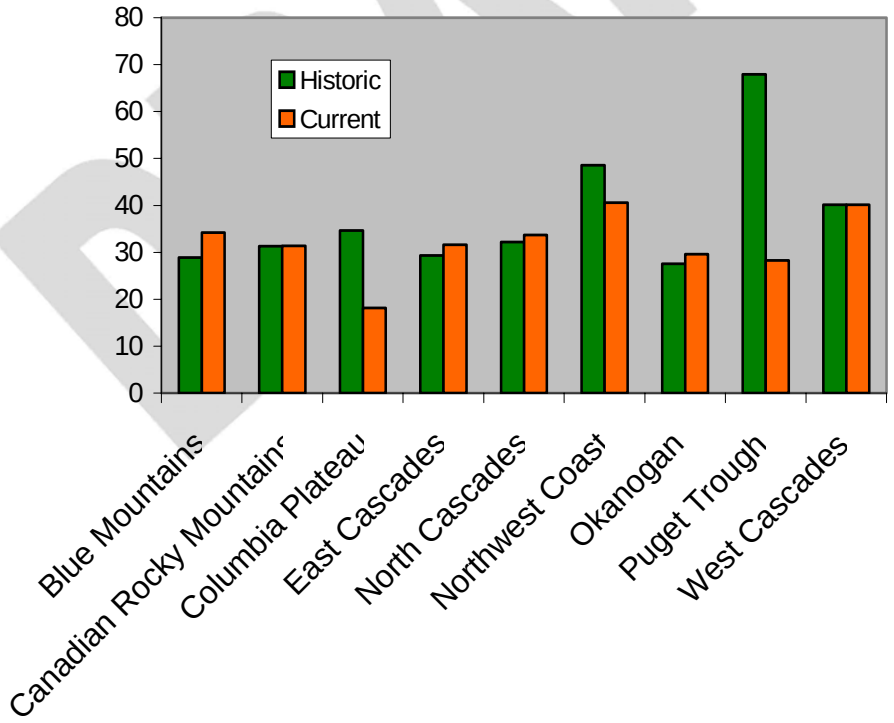
Marine Shelf
Oceanic
Open Water: Lakes, Rivers and Streams
Upland Aspen Forest
Urban and Mixed Environs

G. Major Statewide Conservation Issues

Most of the major statewide problems affecting Washington's wildlife and biodiversity are the direct or indirect result of development pressures on the state's habitat base. Rapid, sustained population growth since the end of World War II has resulted in substantial losses of fish and wildlife habitat in urbanizing areas of the state, as well as a constant invasion of exotic plant and animal species across the landscape.

These habitat losses and changes are most profound in the Puget Sound region, where most of the state's population resides and where development pressure and urban runoff affect a host of terrestrial and aquatic habitats, and the greater Puget Sound estuary itself, as well as the Columbia Plateau, where much of the native shrub-steppe and grassland habitat has been converted to agriculture. These relative changes are evident in the following table, which illustrates general habitat changes in nine ecoregions from 1850 to the present time.

HABITAT CHANGE 1850 – PRESENT



Washington's population is projected to double by the middle of the 21st century. With this population growth will come more cars and roads, more demand for water, energy and developable land, and increased need for the treatment and disposal of solid waste, sewage and stormwater runoff—all of which will impact the state's wildlife and habitat resources. In the face of this projected growth, WDFW and its conservation partners find themselves in the difficult position of applying limited funds and staff

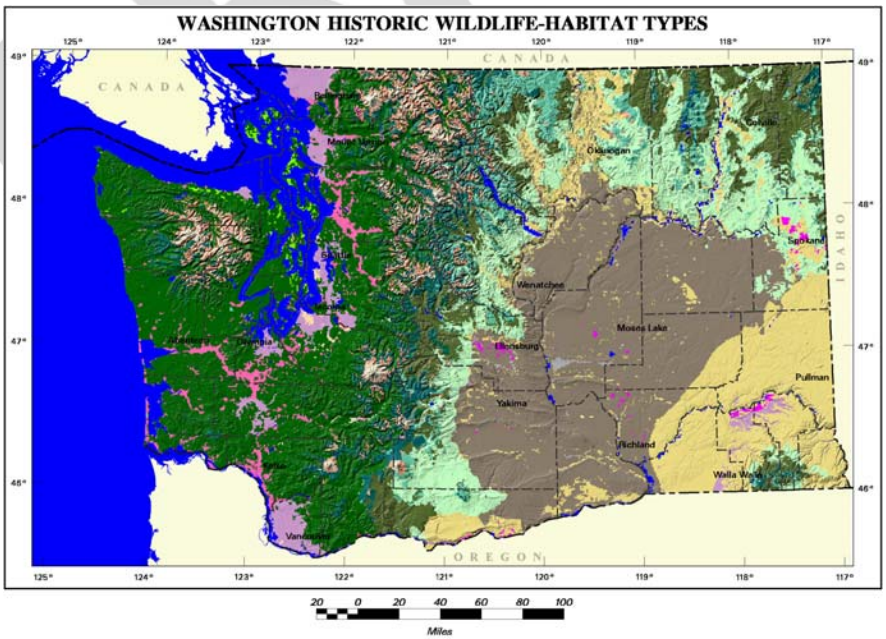
resources to try to identify, conserve and manage what's left of the state's native habitat base, species and biodiversity.

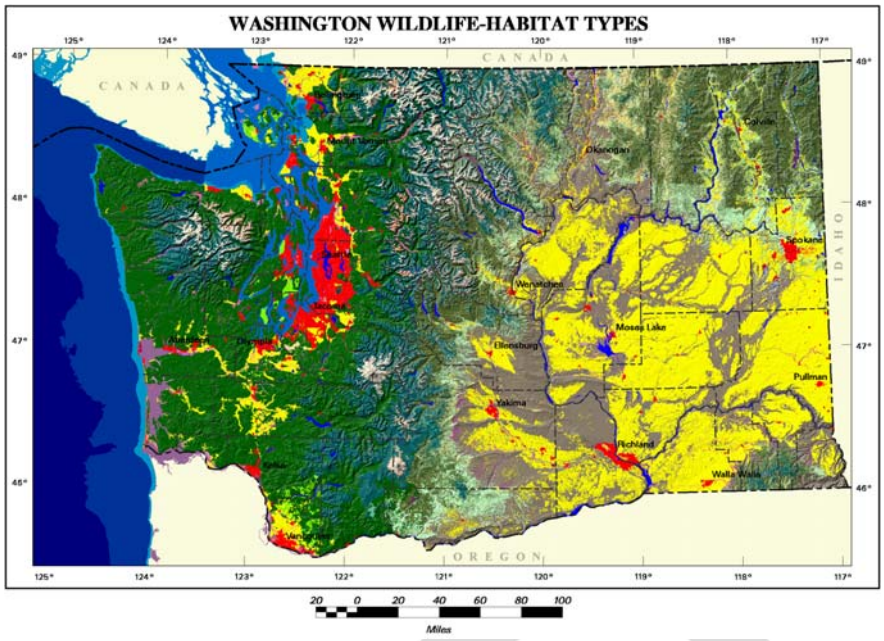
The following major influences have the greatest impact on Washington's fish, wildlife and habitat base:

Habitat loss through conversion, fragmentation and degradation: Habitat conversion, fragmentation and degradation together pose the most serious statewide threat to Washington's native fish and wildlife and biodiversity. Since statehood in 1889, these combined problems have cost the state more than half of its highest priority habitats, including an estimated 70 percent of estuarine wetlands, 50 to 90 percent of riparian habitat, 90 percent of old growth forest, and 70 percent of native shrub-steppe and arid grasslands. These four native habitat types alone are among the most diverse and productive for the state's native fish and wildlife. About 75 percent of Puget Sound's estuaries and their adjacent habitats, such as grasslands, mixed woodlands and floodplain forests, have been modified so significantly that they no longer provide their original functions.

Once native habitat is converted to other uses, the remaining habitat often becomes isolated in a fragmented landscape of multiple land uses. Wildlife populations associated with these fragmented habitats are often subjected to isolation from other breeding populations, competition and predation from other species and increased conflicts with other land uses.

It is estimated that habitat continues to be altered at a rate of 30,000 to 80,000 acres per year, not counting losses due to forest practices or hydroelectric projects. The following state maps, from Wildlife-Habitat Relationships in Oregon and Washington (WHROW), illustrate general habitat changes in Washington from 1850 until the present time.





Invasive plant and animal species: Invasive species constitute a severe and growing threat to Washington's native wildlife, habitat and biodiversity—second only, many believe, to habitat fragmentation. Everywhere in the state, aggressive non-native plants and animals are displacing native species, profoundly altering natural systems, and affecting the state's economy and human health. These exotic plants and animals have become established through both intentional and unintentional releases. Although most non-native species are unable to form self-sustaining populations and soon disappear, some become established and thrive, often outcompeting native species and adversely changing ecosystems in the process. They evolved in other parts of the world, and arrive in Washington without natural predators and diseases that would normally keep their growth in check in their native environment.

The effect of invasive species is especially severe in the shared inland marine waters of Puget Sound and the Georgia Basin to the north. Examples include cord grasses (*Spartina*), Japanese eelgrass, oyster drill, varnish or dark mahogany clam and the European green crab. Cord grass outcompetes and eliminates native salt marsh vegetation and raises the level of the marsh substrate. Oyster drills prey upon young oysters. The green crab, first reported in Willapa Bay in 1998, is a voracious predator that feeds on many types of organisms, particularly bivalve mollusks (clams oysters and mussels), polychaetes and small crustaceans. It also outcompetes Dungeness crab for habitat and food supply, and will eat juveniles.

Some of the most destructive exotic plants are found in the shrub-steppe, grassland and forested communities of eastern Washington, where they thrive through the effects of agriculture, grazing, mining and certain natural disturbances such as catastrophic wildfire and floods. These exotics not only outcompete native plants, but also present a severe and growing problem for farmers, ranchers and forest managers. Perhaps the most widespread and problematic of the dryland invasive species is cheatgrass, originally from Eurasia, which has replaced native grassland communities all over the Intermountain West. Cheatgrass has limited or no food value for wildlife and livestock, and it presents a significant fire hazard in both shrub-steppe deserts and

ponderosa pine forests. Other examples of invasive, nuisance plant species include tumbleweeds, diffuse knapweed, Dalmatian toadflax and sulfur cinquefoil.

Most freshwater aquatic invasive plants found in Washington were originally brought here as ornamental plants for aquariums or water gardens. These ornamentals are usually hardy species and, when introduced to Washington's waters, often thrive and outcompete native plants. Eurasian water milfoil is one aquatic noxious weed that is a particular problem statewide. It reproduces by fragmentation and proliferates to form dense mats of vegetation in the littoral zone of lakes and reservoirs, where it crowds out native aquatic vegetation, reduces dissolved oxygen and can severely degrade the ecological integrity of a water body in just a few growing seasons.

Water quantity—allocation and diversion of surface water: The survival, distribution and diversity of Washington's fish and wildlife is determined by the availability of water; water to support aquatic and marine species, water t drink, water to grow wildlife food plants and water to support the annual upstream and downstream migration of anadromous fish. Water is as important in the Olympic rainforests, which can receive more than 200 inches of moisture a year, as it is in the Juniper Dunes wilderness of eastern Washington, which averages only 8 to 14 inches of annual precipitation. Without adequate water to support fish and wildlife, other conservation issues become secondary.
The relative abundance of water has been a major factor in the growth and development of Washington's landscape and economy since the late 1800s. The seemingly unlimited supply of surface and groundwater encouraged the growth of cities and development of irrigated agriculture, not to mention the generation of hydroelectric power and production of aluminum, both of which require massive amounts of water. Until recent years, water was considered to be so plentiful in the Northwest that plans were considered to divert water from the Columbia River and ship it south to California and other states.

The notion of surplus water is no longer a topic of serious discussion in Washington. Most of the state's rivers have already been developed for hydropower production and agriculture. Unfortunately, the water needs of fish and wildlife have often been overlooked until serous problems occurred, such as the decline and listing of certain stocks of Columbia River salmon under the federal Endangered Species Act.

Dams: There are currently 1,025 dams on Washington's rivers and tributary streams. Because they obstruct the natural flow of rivers, these dams can have many detrimental effects on the aquatic environment, including altering the natural flow cycles of rivers, interrupting the transport of important nutrients and sediments to be deposited in deltas and estuaries, and anadromous fish migration between the ocean and upstream spawning areas. Older dams without fish ladders, including Grand Coulee Dam on the Columbia River, block the upstream migration of fish. Even on newer dams, spinning turbines that generate electricity at hydroelectric dams often disorient, injure or kill juvenile fish on their downstream migration to the sea.

Water diversions: Unless adequate minimum flows are established for fish and wildlife and enforced by Washington state agencies, water withdrawals may result in dewatering important mainstream habitats as well as pools and quiet backwater areas that provide essential habitat for juvenile fish-rearing, amphibians and aquatic invertebrates. Inadequate flows and water depth in these backwater areas deprive developing fish eggs of oxygen, make it easier for fish predators to find their prey, and generally interfere with the journey of migrating fish. Interrupting or delaying migration can cause adult fish to resort to spawning in unsuitable habitat.

Water quality issues: Major water quality issues in Washington usually revolve around preserving the quality of public drinking water supplies and the effects of non-point source contamination on ground and surface waters. However, the quality of surface water and its effect on the health of aquatic ecosystems and wildlife also is becoming increasingly important. The most common water quality problems affecting fish and wildlife in Washington's waters are: 1) fecal coliform bacteria contamination, which affects more than 44% of our polluted waters; 2) contaminated sediments, which are a particular problem in Puget Sound; 3) elevated water temperature, which can quickly alter or destroy an entire aquatic ecosystem; 4) increased sediment in streams, which can blanket important food sources and fish spawning areas; and 5) excess nutrients and pesticides washed into lakes from lawns, golf courses and agricultural fields, which can directly poison aquatic organisms or contaminate waterways. Water quality issues related to potential contamination of the Columbia River from the Hanford Nuclear Reservation are also of concern, particularly if long-buried radioactive waste actually reaches the river or its tributaries.

Decline in salmon populations: Washington's eleven species and subspecies of native salmonid fish have important biological, cultural, commercial and recreational values. As a keystone species, salmon are a critical component of the state's overall wildlife diversity and an important indicator of ecosystem health. Unfortunately, the state's salmon resource has been under heavy pressure from human population growth and development for many years. Urban and industrial land conversion, forest and agricultural practices, water diversion, municipal water demands, overfishing and hydropower development have all contributed to the decline of the number and health of salmon stocks in Puget Sound watersheds and the Columbia River system.

During the 1990s, this documented decline in populations of several salmon species resulted in numerous listings as Threatened or Endangered under the federal Endangered Species Act. A large ESA recovery effort at the local, state and federal levels is now underway in Washington and other Northwest states, as well as in Canada, to prevent further declines and improve the condition of imperiled salmon stocks.

The recovery of listed and depressed salmon populations is currently such a dominant and heavily-funded element of overall fish and wildlife conservation in Washington that this Comprehensive Wildlife Conservation Strategy does not attempt to fully address the various conservation strategies, but rather defers to and references the various state and regional plans and programs that address salmon recovery. Salmon were included in the ranking process for the SGCN list, and these are included in an appendix. The various strategies and plans that address salmon recovery in Washington will be referenced in an appendix in the final CWCS.

Forest conservation and management practices: Over half the land area of Washington is covered in forests, ranging from the temperate rain forest of the Olympic Peninsula to the Douglas-fir dominated lowland forests of the Puget Trough, and from the stunted, slow growing trees of the alpine forests to the dry, ponderosa pine dominated forests of eastern Washington. The management and commercial harvest of timber on both public and private lands has been and remains an important part of Washington's history, economy and culture.

Most of Washington's diverse forest lands have undergone massive change through management practices and conversion to other uses since the turn of the century, including a loss of more than two-thirds of the state's old growth forests with the resulting loss of biological diversity and habitat for old growth-dependent wildlife species. Since the 1970s more than 2.3 million acres of Washington's remaining forest

lands have been converted to other uses or designations, especially west of the Cascade Mountains, although almost four million acres, about 10 percent of the state, remains in privately owned forest land.

In western Washington, formerly extensive forests have been lost and fragmented by urbanization, transportation corridors and other land development. In remaining forested areas, commercial harvest tree replanting has changed the natural forest structure, resulting in artificially simplified forest habitats and a reduction in overall biological diversity. Some commercial timberlands are also being sold to non-industrial owners and in many instances, the new owners choose to convert the land to non-forest uses. The overall loss and fragmentation of forest land in western Washington has resulted in a parallel loss of fish and wildlife habitat and wildlife movement corridors as well as diminished water quality in streams and rivers.

Eastern Washington forests have also been harvested for timber and timber products for many years, but the pressures of urbanization and deforestation are not as great as they are west of the Cascade Mountains. One of the most severe long-term problems for wildlife and habitat in eastern Washington forests is the suppression of nature fires on both public and private forest land. Frequent, low intensity ground fires were historically part of the forest ecosystem, including forest-associated wildlife, and the current emphasis on fire suppression has eliminated an important natural means for removing fuels and thinning stands. The lack of fires often results in denser tree cover, particularly low elevations, and changes in both species composition and structure of natural timber stands, leading to overcrowding and increased susceptibility of these stands to damage by bark beetles and defoliating insects. Timber harvest, road construction and grazing have also affected long-term structural and diversity changes in eastern Washington forests, although the forests of eastern Washington today are nearly as extensive as pre-1900.

Agricultural practices and livestock overgrazing: Agriculture, like forestry, is an important part of Washington's landscape and economy. About one-third of the state's land area (15 million acres) is in agricultural production, including cropland, pastures and orchards. However, the conversion of native grassland, shrub-steppe and wetlands to agricultural purposes since the turn of the 20th century has resulted in extensive losses and fragmentation of habitat and associated wildlife. The statewide habitat maps shown above illustrate the dramatic changes in eastern Washington's landscape due to agricultural development.

Agricultural development has tended to be concentrated in low elevation valleys all over the state, which has significantly reduced and fragmented valley bottom grasslands, shrublands and forested riparian habitats. Agricultural operations in valley bottoms and riparian zones have also increased sediment loads of rivers and tributary streams and unintentionally introduced herbicides and pesticides into aquatic ecosystems. The conversion of dry hillsides and benches to dryland wheat and other crops in eastern Washington has eliminated, altered and/or fragmented once-abundant shrub-steppe and native grassland habitats.

The legacy of livestock grazing throughout Washington has had widespread impacts on the structure and composition of native vegetation and wildlife habitat. Grazing animals in high densities can destroy native vegetation, change the balance of plant species, compact soil, accelerate soil erosion, and reduce the abundance and diversity of native wildlife. The severity of these impacts depends on the number and breed of livestock and their grazing pattern. Overgrazing eventually reduces the productivity of native grasslands. One of the most severe impacts of overgrazing has been the increased spread of exotic plants.

Disease and pathogens: The rapid spread of new wildlife diseases in the United States and around the world since the beginning of the 21st century has created new challenges for both wildlife managers and public health officials. The social and economic impacts of wildlife diseases can be large, not only affecting wildlife populations and habitat but also human health, agriculture and food safety, and many nature-based industries.

A number of serious diseases currently affect Washington's wildlife populations and species at risk in every region of the state. These diseases include notoedric mange, which has become a serious risk to western gray squirrel populations; West Nile virus, a mosquito-borne virus that can cause encephalitis and/or meningitis in birds, horses and humans; avian botulism, which occurs principally in waterfowl and other birds living in an aquatic environment; and hair loss syndrome, which causes hair loss, emaciation and often death in Columbian white-tailed deer.

Inadequate data on wildlife species, populations and habitat: Although many of the species under WDFW's purview, including game species, commercially harvested species, and most of the species on the SGCN list, are fairly well understood in terms of life history, populations and habitat requirements, the ecology of many others is not well understood. Some species may play an important but as yet unknown role in the ecological web; but without more research we will never know, and in some cases it might be too late. The ecoregional assessments and other surveys and plans have also identified certain habitats for which additional research is needed, including eastern Washington wetlands, cave habitats in the Columbia Plateau, and deepwater habitats of Puget Sound. WDFW and its conservation partners need to design, implement and monitor additional applied research and surveys for many of the identified Species of Greatest Conservation Need and associated habitats identified in Washington's CWCS.

H. Major Conservation Programs, Strategies and Tools

Many tools and strategies are available to WDFW and its partners to address the conservation of fish and wildlife habitat and biodiversity in Washington, on both public and private lands. These range from direct conservation efforts such as law enforcement and habitat protection, as well as indirect but equally important programs such as environmental education, habitat assessment and research.

Washington residents and decision makers care deeply about their quality of life, including their fish and wildlife resources, and they have consistently been willing to pass laws and fund programs to help identify and protect important wildlife, habitat and biodiversity. In most cases, it is not necessary to pass new laws or create new programs, but it is important to effectively administer and enforce existing laws and to coordinate the various federal, state and private programs that are already in existence—all of which require adequate funding, staffing and support from the public and decision makers at all levels.

Some of the most effective programs, strategies and tools used by WDFW and its public and private conservation partners are briefly discussed below. A more complete list will be included as an appendix in the final CWCS.

Species conservation strategies: The Species of Greatest Conservation Need list includes species classified by the State of Washington as Endangered, Threatened, Candidate or Monitor species. It also includes a number of species that are not included in one of those classifications but which have been identified as needing additional research or funding attention. A range of conservation actions are

recommended for identified Species of Greatest Conservation Need, from the development of recovery plans for Endangered or Threatened species to baseline population surveys for other species. A series of matrices have been developed that display life history, population status, distribution, problems and conservation actions recommended for all designated Species of Greatest Conservation Need, except for the salmon GDUs mentioned above. These matrices, grouped by taxon, are provided in an appendix.

Coordinated salmon recovery: In 1999, after salmon listings were made under the Endangered Species Act, Washington developed the *Statewide Strategy to Recover Salmon: Extinction is Not an Option* to outline the vision, goals and objectives necessary to keep salmon from becoming extinct in Washington. The Strategy identified four main areas of recovery emphasis, referred to as the "four Hs"—habitat, harvest, hatcheries and hydropower—and stressed that recovery efforts need to be appropriately integrated and coordinated at the federal, state, regional and watershed levels. Since then, large-scale, coordinated salmon recovery efforts have been underway in Washington, involving many federal, state, tribal and local agencies, as well as organized conservation groups and the public.

Salmon recovery is a complex and expensive proposition in the Pacific Northwest. WDFW and many of its conservation partners are committed to assuring that these various efforts are successful in recovering salmonid populations. Salmon recovery is being coordinated in seven regions of the state (see map below).

A number of salmon populations (classified as genetic diversity units or GDUs) were ranked and included as a component of the overall **Species of Greatest Conservation Need** list (see appendix). However, the salmon recovery effort in Washington is so large relative to other conservation programs that we have not attempted to summarize the plans or fully integrate them into the CWCS. For more information on Northwest salmon populations and salmon recovery efforts in Washington, please go to http://wdfw.wa.gov/recovery.htm.

Habitat conservation on public lands and waterways: Approximately 40 percent of Washington's land base is in public ownership, and conservation of wildlife and habitat is easier to accomplish on these public lands and waterways than on private property. Most of Washington's public lands and water resources are either managed specifically for fish and wildlife or managed under a multiple-use concept that addresses the conservation of important habitat in the context of other uses. All public land and water management agencies have some degree or responsibility for fish, wildlife and

habitat on their lands. Even the Department of Defense and Department of Energy operate or fund active fish and wildlife programs on their lands, including Fort Lewis, the Yakima Firing Center and the Hanford Nuclear Reservation.

WDFW manages a statewide network of more than 800,000 acres of land and water that provide important habitat for wildlife while offering a range of fishing, hunting and other wildlife-related recreational opportunities. Most of these lands are designated as state Wildlife Areas, which are found in almost every county in Washington.

Protecting habitat and biodiversity on other public lands, including state and federal lands, depends on each agency's mission, management priorities, funding, knowledge of natural resources, and willingness to actually identify and conserve areas important for fish, wildlife and biodiversity. WDFW provides fish and wildlife information and habitat management recommendations to other public land management agencies on demand. WDFW will give important consideration to identified Species of Greatest Conservation Need, associated habitats and biodiversity in the future management of its publicly owned land base.

Habitat conservation on private lands: Because about 60% of Washington's land base is in private ownership, WDFW and its conservation partners have had to devise many different approaches or tools for identifying and protecting important species, habitats and biodiversity on these private lands. Conservation tools include direct and indirect regulation, habitat acquisition and landowner incentives.

All conservation tools are important, but no single approach is ever going to be enough adequately identify, protect, restore and properly manage the state's wildlife resources and biodiversity, especially on private lands. State and federal regulations only go so far in protecting habitat on private land. Regulations currently in place usually focus narrowly on endangered species rather than areas important for biodiversity. Land acquisition programs are very effective in permanently protecting important habitats that cannot be saved in any other way; but not all land is for sale, and funds available for acquiring habit, including conservation easements, are very limited.

The most cost effective way to ensure the protection of important wildlife and habitat on private lands is often through the application of financial and non-financial landowner incentive programs. These landowner incentives include direct local property tax reductions by counties; acquisition of conservation easements by agencies and land trusts; and programs such as WDFW's voluntary Upland Wildlife Restoration program, which provide direct incentives to willing agricultural landowners to protect and restore wetlands and other important habitat on their land. WDFW will continue to consult with landowners, private conservation organizations and conservation districts to improve management practices that benefit fish and wildlife on private land. WDFW will also work closely with the Washington Biodiversity Council to develop and enhance various conservation incentives available to private landowners.

Habitat acquisition: For WDFW and conservation partners like the Washington Department of Natural Resources, U.S. Fish and Wildlife Service, The Nature Conservancy, the Trust for Public Land and local land trusts, acquisition of land from willing landowners is an important non-regulatory tool for protecting areas with high habitat or biodiversity values. Although the cost of acquiring land can be significant compared to other alternatives, in some cases it is the best or only alternative for long-term protection and stewardship of critical habitats. The term "acquisition" is usually associated with the outright purchase of land, but may also include conservation easements, land donations or land trades.

WDFW has a long and successful history of identifying important habitat areas and protecting them through fee-title acquisition. The State's habitat acquisition program began in 1939, shortly after the Department of Game was established by the legislature. It tapered off in the 1970s after about 340,000 acres of habitat had been purchased, but continues today, although in a much more targeted and collaborative fashion. In 2005 WDFW completed a new policy plan to guide future acquisition and management of lands. A public review draft of this plan, entitled *Lands 20/20: A Clear Vision for the Future* is available at http://wdfw.wa.gov/lands/lands2020/index.htm. In addition to *Lands 20/20*, WDFW will use the CWCS, ecoregional assessments, species recovery and management plans and other tools to set priorities for future habitat acquisition.

A number of state and federal funding programs have been established over the last twenty years to address habitat acquisition, and these programs are administered in Washington by a mix of federal, state and local agencies, partnerships and conservation organizations including the Pacific Coast and Intermountain West joint ventures and an expanding system of regional and local land trusts. State programs include the Washington Wildlife and Recreation Program (WWRP), Salmon Recovery Funding Board, Trust Land Transfer Program, and Aquatic Lands Enhancement Account (ALEA). Federal programs include the Land and Water Conservation Fund, North American Wetlands Conservation Act, and National Coastal Wetland Conservation Grant program.

The WWRP is an especially successful statewide program established by the Washington Legislature in 1989. Originally envisioned as a ten-year program, more than $402 million has been appropriated since 1989 for state and local agencies to acquire habitat and outdoor recreation lands. In 2005 the Legislature recommitted, restructured and refunded the program with a $50 million biennial appropriation. More information on the WWRP and other state and federal habitat funding programs will be provided in an appendix in the final CWCS.

Research, monitoring and surveys of fish, wildlife and habitat: Scientific research has long provided the foundation for fish and wildlife management in Washington, and WDFW conducts ongoing research and field investigations into the ecological requirements, population status, migration habitats and habitat relationships of many fish and wildlife species. WDFW also conducts genetic research on terrestrial wildlife and fisheries, performs DNA forensic analysis to support WDFW enforcement investigations, and provides technical support and expertise in wildlife veterinary medicine, including training on humane and safe handling and immobilization of wildlife species. WDFW also develops, analyzes and maintains computerized wildlife and fisheries survey databases. To ensure that conservation priorities always reflect the current conservation needs of wildlife species and habitats, research and surveys will continue to be a high priority for WDFW. Monitoring of species, habitats and biodiversity is addressed in the *Monitoring and Adaptive Management* section of the CWCS.

Direct enforcement of state laws to protect fish, wildlife and habitat: WDFW has limited direct authority for the protection of wildlife habitat, although it does enforce state laws to protect fish habitat (Hydraulic Project Approval) and fish passage and diversion standards. Through the Washington Fish and Game Commission, WDFW also establishes regulations for the legal harvest of game and commercially harvested fish and wildlife, and WDFW officers enforce those harvest regulations statewide in cooperation with other state, federal and tribal enforcement personnel. Harvest regulations are generally conservative and designed to allow sustainable harvest that has no adverse impact on fish and wildlife populations. However, the illegal

overharvest of wildlife or the destruction of critical protected habitats can have a profound impact on fish and wildlife populations that are rare, depressed or threatened with extinction. Washington is unlikely to seek or obtain new laws or expanded authority to protect fish, wildlife and habitat in the near future, which makes the effective enforcement of current state laws and regulations an especially high priority for WDFW.

Indirect enforcement of local, state and federal laws to protect fish, wildlife and habitat: WDFW works closely with other agencies including local and tribal police agencies, the Washington Department of Natural Resources, U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS) to enforce laws and regulations that are both within and outside WDFW's jurisdiction. For example, migratory birds and marine mammals are protected and regulated under both state and federal law and jointly enforced by WDFW and USFWS (migratory birds) and NMFS (marine mammals). WDFW also works closely with other agencies in publicizing, implementing and sometimes enforcing laws, regulations and permit conditions that prevent the destruction or degradation of important habitat; included here are the federal Endangered Species Act, Northwest Power Planning Act and Clean Water Act, as well as the Washington Forest Practices Act, Shoreline Management Act and the locally administered Washington Growth Management Act. WDFW also works with the Washington Departments of Transportation and Ecology in developing and implementing mitigation measures for permitted projects with potential adverse impacts on fish and wildlife.

Because much of the state's authority to protect fish and wildlife habitat has devolved to cities and counties, WDFW puts a very high priority on providing good biological information to local planners and decision makers to improve their ability to administer the Growth Management Act and other locally administered land use laws. The PHS program has provided good site-based information to local governments since 1989. With the completion of statewide ecological assessments in 2006, WDFW will be able to provide even better assessment data to local governments on the location of critical habitats and biodiversity for land use planning.

A description of some of the most important federal, state and locally administered laws that address the protection of fish, wildlife and habitat will be included as an appendix in the final CWCS.

Wildlife information, education and watchable wildlife programs: Effective conservation of habitat and biodiversity can only be accomplished if the public and policymakers understand the biological needs of fish and wildlife, the importance of biodiversity to our overall quality of life, and how citizens can contribute to conservation efforts. It is also critical that the public have opportunities to observe and enjoy wildlife in its natural surroundings. As Washington's population grows, so does public demand for wildlife information and wildlife related recreation opportunities, including hunting, sportfishing and wildlife viewing. The economic contribution to Washington's economy from wildlife recreation currently exceeds $1 billion annually, and this will also grow along with population growth. WDFW's Public Affairs Office communicates with the news media, the public and various government agencies and conservation groups about wildlife conservation and recreation. Information is disseminated in a variety of ways, including "Wild About Washington", a monthly television program aired on about 30 public TV stations around the state. In its 2005-07 Strategic Plan (http://wdfw.wa.gov/depinfo/strategic_plan05-07.pdf), WDFW committed to developing effective communication strategies to increase the public understanding of the health of the state's fish, wildlife and habitats and the opportunities to enjoy, protect and recover them. One of the most successful and

popular has been the development of web-based wildlife viewing cameras (WildWatchCams) http://wdfw.wa.gov/wildwatch/index.html, showing rarely seen life history aspects and educating the public about the species' needs and challenges.

In 2003, WDFW joined with other agencies, educators and businesses to develop and promote a new public-private Pacific Education Institute (PEI). PEI will integrate environmental education with the public school curriculum and state learning standards by providing K-20 educators with the training and materials to offer academically rigorous education activities focused on natural resources and the surrounding environment. In 2004, the Governor's Council on Environmental Education and other partners released a *Report Card on the Status of Environmental Education in Washington State*, which provides a roadmap for expanding environmental education. This plan may be viewed at http://www.eeaw.org/EE%20Report/2004_WAEE_Report_Card.pdf. The Washington Biodiversity Council is also considering recommendations to better integrate biodiversity education into the public school curriculum.

The fastest-growing sector of wildlife recreation demand is watchable wildlife, with an estimated 47 percent of Washington's residents participating in some form of wildlife watching in 2001. WDFW has embraced the national Watchable Wildlife movement and is working with the Washington Division of Tourism, Depart of Transportation, Washington State Parks, Audubon Washington and other partners to develop programs such as the Washington State Birding Trail program to meet this growing demand for non-consumptive wildlife recreation. In 2004 a new statewide strategic plan for watchable wildlife was provided to the Governor and Washington Legislature. This plan, titled *Wildlife Viewing Activities in Washington: A Strategic Plan* is available at http://wdfw.wa.gov/viewing/wildview.htm.

Harvest management: Demand for traditional hunting and fishing activities remains steady in Washington. The 2001 National Survey of Fishing, Hunting and Wildlife-Associated Recreation indicated that Washington is eighth in the nation in spending by recreational fishers, generating an estimated $1.14 billion in annual revenues to the state. A major focus of both recreational and commercial fishing is the state's salmon resource, which includes healthy stocks as well as depressed populations, and ESA listing of certain salmon populations. The same survey showed that recreational hunting generates another $350 million in annual revenue to the state each year.

The sustainable management of game and commercially harvested species, and the allocation of harvest for licensed hunters, sport anglers and commercial fishers, will continue to be an important management focus for WDFW. Conservation programs by WDFW and its partners—ranging from law enforcement to habitat acquisition to environmental education programs—benefit the broad range of fish and wildlife species, their habitats and the overall biodiversity of the state. A number of recent plans have been adopted which shape the future of WDFW's game and commercial harvest program, including the *2003-2009 Game Management Plan,* nine elk herd management plans, *Outline for Salmon Recovery Plans* (2003), *Bull Trout and Dolly Varden Management Plan* (2000), *Forage Fish Management Plan* (1998), and the Puget *Sound Groundfish Management Plan* (1998). A more complete list of these plans will be included in the final CWCS.

Forest practices management: Over half the land area of Washington is forested, and most of the state's forested landscapes have been and continue to be managed for timber and timber products. Because of the influence of commercial forestry on the state's forest lands and wildlife habitat, it is imperative that WDFW and its

conservation partners put a heavy emphasis on influencing the forest practices used in managing and harvesting these public and private timberlands.

Timber management and harvest on federal land, including National Forests, is regulated by the Northwest Forest Plan, adopted by the federal government in 1994 to provide for maintenance and restoration of a functional and interconnected late-successional forest ecosystem. The management and harvest of timber on non-federal land in Washington, both public and private, is regulated by the state Forest Practices Act. Since the federal listing of the northern spotted owl as a Threatened species in 1990 and the passage of the Northwest Forest Plan in 1994, there have been a number of proactive efforts and agreements among public agencies, Indian tribes, conservation groups and private timber companies to protect listed species and their habitat, and to avoid further listings of forest species under the Endangered Species Act, while protecting the economic viability of the timber industry in Washington. One of the most recent and successful of these efforts is the Forests and Fish Agreement initiated in 1997 by state and federal agencies, Indian tribes, conservation groups and private timber companies. This agreement sets high voluntary standards for logging practices and road maintenance while ensuring that forest landowners receive the technical support they need in order to comply with the new rules. (http://www.dnr.wa.gov/forestpractices/rules/forestsandfish.pdf)

In addition to the Forests and Fish Agreement, WDFW and many of its conservation partners are heavily involved in other efforts to influence, establish and require sound forest practices on the state's forest lands, including participation on the state Forest Practices Board and development of voluntary Habitat Conservation Plans with private timber companies as an alternative to additional federal regulation to protect listed wildlife species and habitats.

Biological assessment, local planning and information services: Land use planning and conservation of land and water resources is largely the responsibility of local governments in Washington. While both cities and counties are required to plan under the state Growth Management Act, counties have a special responsibility to administer the optional local conservation futures and open space property tax incentive programs, and to support local conservation districts, land trusts and watershed councils that provide assistance to private landowners. WDFW is constantly working to provide better, up-to-date fish, wildlife and habitat information in formats and scales that are most useful for local planners.

WDFW currently maintains the Priority Habitats and Species (PHS) program, which gives counties data on the location of priority fish and wildlife habitats as well as habitat management recommendations. But the current PHS approach does not address larger landscape issues such as habitat connectivity, regional or local species viability, prioritization of habitat areas, cumulative effects of development, or multi-county habitat management. The CWCS will allow WDFW to help counties connect sites of ecoregional importance with habitats of local significance.

The ecoregional assessments being conducted by WDFW, the Washington Department of Natural Resources and The Nature Conservancy will be combined with other existing data, including that from PHS and the Washington Natural Heritage Program, to produce digital "biodiversity contour maps" that portray the relative importance of habitat across the landscape. These maps and associated data should be useful to local governments in understanding where habitat is likely to be lost or gained under various land use plan alternatives.

I. Major Statewide Conservation Planning and Assessment Initiatives

WDFW, working with many public, tribal and private conservation partners, is involved in a number of large conservation planning and assessment efforts for fish and wildlife species, habitats and biodiversity. These collaborative efforts are conducted at various levels of detail, concluding statewide, regional and county scales. WDFW also develops and implements management and recovery plans for many species, management recommendations for priority habitats, and strategic planning for administration of the agency. Some of the most important of these collaborative planning and assessment efforts are described below; a more complete list and description will be included as an appendix in the final CWCS.

Washington Biodiversity Council: Governor Locke created The Washington Biodiversity Council in 2004 to develop and promote more effective ways of conserving Washington's biodiversity. Comprised of 23 members, the Council is directed to develop a proactive blueprint for biodiversity protection that is comprehensive, enables policymakers to target limited funds, and goes beyond the crisis-driven policies that currently dictate many of our conservation efforts. In short, it is an opportunity to shape Washington's first-ever biodiversity strategy.
http://www.iac.wa.gov/biodiversity/default.htm

Northwest Forest Plan: The Northwest Forest Plan presents a vision for a sustainable future for federal natural resources (lands managed by the USDA Forest Service and the USDA Bureau of Land Management) and for local timber-dependent communities within the range of the northern spotted owl. This area encompasses all or portions of 17 National Forests in Washington, Oregon and California.
http://www.fs.fed.us/r6/nwfp.htm

Northwest Power and Conservation Council Fish and Wildlife Program: The Northwest Power Act of 1980 directs the Council to develop a program to protect, mitigate and enhance fish and wildlife of the Columbia River basin that have been impacted by hydropower dams. This program is being implemented through a partnership of federal and state agencies. Coordinated fish and wildlife plans have been developed for 58 subbasins in Washington and other Northwest states.
http://www.nwcouncil.org/fw/program/Default.htm

Ecoregional Assessments: To provide an ecoregional perspective for multi-species conservation and ecosystem-level habitat protection, WDFW and the Washington Department of Natural Resources formed a public-private partnership in 2001 with The Nature Conservancy to conduct nine ecoregional assessments for the state's nine ecoregions. These assessments will guide the state's future actions by identifying high priority areas for the conservation of biological diversity in each ecoregion. They will provide usable, comprehensive information for planning and decision making at both regional and landscape scales. Ecoregional assessments can inform multi-state conservation efforts, statewide conservation initiatives such as the Washington Biodiversity Council, watershed plans intended to conserve both fish and wildlife, and county comprehensive plans required by the Growth Management Act. For more information, contact any of the abovementioned organizations.
http://www.consbio.org/cbi/pacnw_assess/assess-main.htm

Puget Sound Shared Salmon Strategy: The Shared Salmon Strategy is a groundbreaking cooperative effort to protect and restore salmon runs across Puget Sound through the collaboration of federal agencies such as NOAA Fisheries and U.S. Fish and Wildlife Service; Puget Sound Indian Tribes; state natural resources agencies, including WDFW; local governments and key nongovernment organizations. The Strategy will set salmon recovery targets and ranges for each Puget Sound watershed, identify actions needed at the watershed level to meet recovery targets, determine if identified actions add up to recovery, and commit resources necessary for successful implementation. http://www.sharedsalmonstrategy.org

Puget Sound Water Quality Management Plan: The Puget Sound Water Quality Management Plan is Washington's long-term strategy for protecting and restoring Puget Sound. The management plan provides the framework for managing and protecting the Sound and coordinating the roles and responsibilities of federal, state, tribal and local governments. The management plan also serves as the federally approved Comprehensive Conservation and Management Plan (CCMP) for Puget Sound under Section 320 of the federal Clean Water Act, which established the National Estuary Program. http://www.psat.wa.gov/Publications/manplan00/mp_index.htm

Puget Sound Nearshore Restoration Project: The Puget Sound Nearshore is defined as that area of marine and estuarine shoreline extending approximately 2,500 miles from the Canadian border throughout Puget Sound and out the Strait of Juan de Fuca to the Pacific Ocean. The Puget Sound Restoration Project was initiated in 2003 to identify significant ecosystem problems, evaluate potential solutions, and restore and preserve critical nearshore habitat. The project represents a partnership between the state and federal government organizations, Indian tribes, industries and environmental organizations. http://www.pugetsoundnearshore.org/

Salmon Recovery Plans and Assessments: WDFW is either leading or heavily involved in all statewide and regional assessments and plans that specifically address salmon recovery in Washington. Included are the Salmon & Steelhead Habitat Inventory & Assessment Project (SSHIAP), Puget Sound Shared Salmon Strategy, Salmon Recovery Funding Board, Puget Sound Comprehensive Chinook Management Plan, and the public-private Forests and Fish Agreement. Other statewide or regional conservation plans such as the Puget Sound Action Plan, while not specific to salmon, do address the protection and management of important salmon habitat and migration corridors. The National Marine Fisheries Service has the lead federal role in recovering ESA-listed salmon stocks in Washington and other states. As co-managers of the salmon resource, Washington's Treaty Indian tribes also play a major role in developing and implementing salmon recovery efforts in Washington. A more complete list of salmon recovery plans and assessments will be included as an appendix in the final CWCS.

U.S. Fish and Wildlife Service Comprehensive Refuge Management Plans: Under the National Wildlife Refuge System Improvement Act of 1997 (Refuge Improvement Act), all national wildlife refuges are required to develop a Comprehensive Conservation Plan (CCP), a document that provides a framework for guiding refuge management decisions. All refuges are required by law to complete their CCP by 2012. The CCP process complies with standards outlined in the National Environmental Policy Act (NEPA). NEPA requires CCPs both to examine a full range of alternative approaches to refuge management and also to involve the public in selecting the alternative best suited to the refuge's purposes. In addition, the Refuge Improvement Act also states that refuges must "develop and implement a [planning] process to ensure an opportunity for active public involvement in the preparation and revision of comprehensive conservation plans." Of Washington's 20 National Wildlife

Refuges (NWR), only Little Pend Oreille and Nisqually NWRs have completed a CCP. Comprehensive conservation planning is currently underway for 12 more refuges, and the remaining seven refuges will have completed CCPs by 2011. http://pacific.fws.gov/planning/

Intermountain West Joint Venture Coordinated All-bird Conservation Plan for Eastern Washington: The Intermountain West Joint Venture (IWJV) was established in 1994 as the eleventh public-private partnership to implement the habitat goals of the North American Waterfowl Management Plan. The IWJV encompasses parts of eleven Western states, including all of eastern Washington. Western Washington is covered within the Pacific Coast Joint Venture. IWJV partners work to identify, protect, restore and enhance wetlands and other important habitats for waterfowl and other migratory birds, as well as native resident birds such as sage-grouse and sharp-tail grouse. In 2005, the IWJV adopted "all-bird" conservation plans for all eleven IWJV states that identify priority bird species and habitats and landscape-level Bird Habitat Conservation Areas. http://www.iwjv.org

Washington Natural Heritage Plan: The Washington State Legislature established the Washington Natural Heritage Program (WHNP) within the Department of Natural Resources in 1982. The WNHP collects data about existing native ecosystems and species to provide an objective, scientific basis from which to determine protection needs. The program also develops and recommends strategies for protection of the negative ecosystems and species most threatened in Washington. The Natural Heritage methodology consists of three steps: classification, inventory and protection planning. These steps are repeated as new information is collected and natural features are successfully protected.
http://www.dnr.wa.gov/nhp/refdesk/plan/index.html

Interior Columbia Basin Ecosystem Management Project: In July 1993, President Clinton directed the Forest Service to "develop a scientifically sound and ecosystem-based strategy for management of eastside forests." Over 170 different GIS data layers or themes were developed, focusing on the upper Columbia River basin east of the Cascades. Much of the information is derived from other data providers, including the USDA Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service and U.S. Geological Survey. http://www.icbemp.gov/

Washington GAP Project: The Gap Analysis Program: A Geographical Approach to Planning (GAP) data are based on an interpretation of vegetation types and habitat associations. The GAP program is funded by the Biological Resources Division of the U.S. Geological Survey and located within the Washington Cooperative Fish and Wildlife Research Unit at the University of Washington.
http://www.fish.washington.edu/naturemapping/wagap/public_html/

Important Bird Areas (IBA) Programs: The IBA Program is an international, site-based approach to bird conservation that began in Europe in the mid-1980s. The Washington IBA Program was initiated in 1997 as a joint effort of Audubon Washington and WDFW. Between 1998 and 2000, 75 sites were formally nominated and evaluated, and 56 of these sites were described in *Important Bird Areas of Washington*, published in 2001 by Audubon Washington. The IBA Program is currently being updated and expanded by Audubon Washington, which is also developing a statewide Washington Birding Trail system that will reflect and be compatible with the Washington IBA Program. For more information, go to http://wa.audubon.org/new/audubon.